

Having described the preferred embodiments, the invention is now claimed to be:

1. A system for providing subject location information for use by one or more software applications (12), the system comprising:
 - an environmental model (14) which stores environmental location information including environment subsections defined by system location coordinates, said environmental model (14) communicating with the one or more software applications (12) for receiving an application-specific location request including an area of interest with an application-specific system coordinate resolution;
 - at least one location sensor (20) for sensing the position of a subject within the area of interest at a sensor-specific sensing frequency and resolution to provide sensor-specific subject location information; and
 - a sensor translator (22) connected to the environmental model (14) and the location sensor (20) for translating the sensor-specific subject location information to system location coordinates having the application-specific system coordinate resolution.
2. The system defined in claim 1 wherein the application-specific location request further includes an application-specific update frequency and the sensor translator (22) updates the translated system location coordinates at the application-specific update frequency.
3. The system defined in claim 2 further including:
 - a plurality of location sensors (20), the environmental model (14) receiving a plurality of application-specific location requests each including at least one of an area of interest, an application-specific system coordinate resolution, and an application-specific update frequency for the translation of subject location information from said plurality of location sensors (20).
4. The system defined in claim 1 wherein the environmental model is adapted in accordance with each application-specific location request.
5. The system defined in claim 1 further including:
 - a context awareness subsystem (34) which determines the subject location from the translated location coordinates.
6. The system defined in claim 1 wherein the environmental subsections includes one of:

rooms within a building;
hallways within a building;
locations outside a building;
regions of a living space; and
regions of an office building.

7. The system defined in claim 1 wherein the location sensor (20) includes one of:
computer vision apparatus;
a touch sensor;
a threshold crossing detector;
a motion detector; and
a radio frequency transponder.

8. A system for providing subject location information for use by one or more software applications comprising:

environmental model means (14) for communicating with the one or more software applications for receiving an application-specific location request including an area of interest and an application-specific system coordinate resolution, said environmental model means modeling environmental location information including environment subsections defined by system location coordinates;

location sensing means (20) for sensing the position of a subject within the area of interest at a sensor-specific sensing frequency to provide sensor-specific subject location information; and

sensor translating means (22) connected to the environmental model means and the location sensing means (20) for translating the sensor-specific subject location information to system location coordinates having the application-specific system coordinate resolution.

9. The system defined in claim 8 wherein the application-specific location request further includes an application-specific update frequency and the sensor translating means (22) updates the translated system location coordinates at the application-specific update frequency.

10. The system defined in claim 8 wherein the environmental model is adapted in accordance with the application-specific location request.

11. The system defined in claim 8 further including:

context awareness means (34) for determining the subject location from the translated location coordinates.

12. The system defined in claim 8 wherein the location sensing means (20) includes one of a computer vision apparatus, touch sensor, a threshold crossing detector, a motion detector, and a radio frequency transponder.

13. The system defined in claim 8 wherein the environmental subsections are one of rooms within a building, hallways within a building, locations outside a building, regions of a living space and regions of an office building.

14. The system defined in claim 8 wherein the subject is one of a person, an animal, and an electronic device.

15. A method of providing subject location information from a plurality of location sensors to one or more software applications comprising:

communicating an application-specific location request including an area of interest and an application-specific system coordinate resolution to the environmental model having environmental location information including environmental subsections defined by system location coordinates;

acquiring sensor-specific subject location information of a subject within the area of interest with at least one location sensor at a sensor-specific sensing frequency; and

translating the sensor-specific subject location information to system location coordinates having the application-specific system coordinate resolution using the environmental model as a translation key.

16. The method defined in claim 15, further including:

communicating a plurality of application-specific location requests to the environmental model, each request corresponding to the same software application.

17. The method defined in claim 15, further including:

communicating a plurality of application-specific location requests to the environmental model corresponding to different software applications.

18. The method defined in claim 17 wherein the environmental model adapts in accordance with the application-specific location requests corresponding to different software applications.

19. The method defined in claim 15 wherein the acquiring step includes:
acquiring sensor-specific subject location information with a plurality of location sensors at sensor-specific sensing frequencies of the corresponding application-specific location requests; and
the translating step includes:
translating the sensor-specific subject location information to system location coordinates each having the application-specific system coordinate resolution of the corresponding application-specific location request.

20. The method defined in claim 15 wherein the communicating step includes:
the application dynamically communicating the application-specific location request to the environmental model.

21. The method defined in claim 15 wherein the application-specific location request includes an application-specific update frequency, and further including:
updating the translated system location coordinates at the application-specific update frequency.

22. The method defined in claim 15 further including:
determining the subject location from the received translated system location coordinates.

23. The method defined in claim 15 wherein the subject is at least one of:
a person;
an animal; and
an electronic device.